

Requirements to Deploy AP238 CC1 in a Plant

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- **A way to generate AP238 CC1 Toolpaths**
 - A CAM system that outputs AP238 CC1 toolpaths (preferred)
 - Example: ST-Machine for Mastercam STEP Tools-written
 - Example: ST-Machine for GibbsCAM STEP Tools-written
 - Example: UNIX STEP-NC Unigraphics Solutions-written
 - OR**
 - A method to convert a CAM – Generated CL (Center-Line) file to AP238 CC1
 - Example: Catia V5 and Boeing-written converter
- **A way to execute AP238 CC1 Toolpaths**
 - A CNC that accepts native AP238 CC1 (preferred)
 - OR**
 - A CNC that can host an AP238 CC1 converter
 - Must be capable of transforming between toolpaths and machine motion if more than three axis
 - Examples:
 - Siemens 840D
 - Fanuc 15M
 - Fanuc 16
 - Fanuc 30
 - RS494-compliant
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 - Must be capable of executing machine-neutral subroutines for tool change, spindle commands, etc
 - Must be capable of hosting an AP238 CC1 converter directly or remotely
- **Tools to support the implementation and use of AP238 CC1 of NC programs**
 - AP238 CC1 viewer
 - Example: ST-Machine Explorer from STEP Tools, Inc.
 - AP238 CC1 to CNC converter mapping tool
 - Allows display of relationship between AP238 CC1 file elements and CNC input file
 - CAM to AP238 CC1 converter mapping tool
 - Allows display of relationship between CL file and AP238 CC1 file elements
 - A method to simulate generated toolpaths
 - A method to detect potential collisions at the machine
 - A method to detect travel limit violations at the machine
 - A method to verify AP238 CC1 file compliance
 - Example: ST-Machine STIX Library from STEP Tools, Inc.
 - A method to verify AP238 CC1 CNC compliance